

DESIGN PANEL NO. 49 2-26-98

IVHM, RPS, HazGas, and OTHER CONSOLIDATED DATA Atlas DP1 - Emilio Valencia

OVERVIEW

This thread provides process improvement to the current operations by providing increased visibility to the Integrated Vehicle Health Management System, the Record Playback System, and Hazardous Gas System. These measurements will be consolidated in to the Consolidated System Gateway and provide to the Shuttle Data Stream. This will make this data available in the current operational area and allow it to be used in the future by the CLCS system.

The Integrated Vehicle Health Management (IVHM) project is part of the Shuttle Upgrades program. IVHM/Human Exploration and Development (HEDS) Technology Demonstration (HTD), demonstrates off-the-shelf sensing technologies in an operational environment to make informed design decisions for the eventual Orbiter upgrade. Integrated Vehicle Health Management takes the Orbiter's instrumentation system a step further by providing capabilities to process data real-time versus merely recording data. It is planned to fly two Human Exploration and Development of Space Technology Demonstrations on the same Orbiter on successive flights with incorporation of additional sensors between flights. During cryogenic propellant load in terminal launch countdown, a Vehicle Health Monitoring data stream will be routed out of the Orbiter's T-0 umbilical for transmission, processing and viewing in the Launch Control Center. At approximately T-5 minutes, a command will be sent to the Vehicle Health Monitoring processor to begin recording data. Data will be recorded on ascent, during three planned one hour snap shot periods and on descent. The processor will be dumped to a ground system after the Orbiter has landed and has rolled into its Orbiter Processing Facility bay.

The Backup hazardous Gas Detection System consists of a set of specialized hardware and software located in each of the mobile launchers. The system provides LPS HIM's with a very minimal set of data. The system is controlled (and more detail data is displayed) via a dumb terminal located in the CCMS control rooms. There is a project to upgrade this interface with a PC-based GUI (Labview) for command and control. This interface will provide a Shuttle Data Stream Prime to provide this data to the user community.

Additional data sources will be added to the Consolidated System Gateway and for recording on Shuttle Data Center .

Highlights:

- Additional data available in the operational control rooms
 - Integrated Vehicle Health Management
 - Record Playback System
 - Hazardous Gas System
 - Consolidated Systems (CS) Gateway will be activated

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ACTIONS

ACTIONEE

DUE DATE

STATUS

1. Provide Impact assessment for the requirement to provide SL connectivity and displays to Neuro Net software as part of Shuttle upgrades effort.

Emilio Valencia

3/12/98

In work

Approved pending update